

Class: Year 5

Unit		
<p>Aut 1/2 Unit title: Mechanical systems – Gears and Pulleys</p>	<p><u>National Curriculum coverage</u></p> <ul style="list-style-type: none"> - Give examples of machines that use gears and/or pulleys. - Describe how gears and pulleys work and their purpose. - Design and make a gear and pulley system. - Write a problem statement. - Write questions for market research, provide feedback and research market competitors. - Write and use a design brief to guide design. - Evaluate a product against a set of design criteria, provide useful feedback and incorporate changes. - Draw and annotate an eco-gadget bike design. 	<p><u>Key designing skills</u></p> <p>Design</p> <ul style="list-style-type: none"> - Noticing wider-reaching problems or needs in the community. - Identifying a wide range of needs and potential barriers through market research. - Writing more complex problem statements that consider multiple factors and constraints. - Creating more complex design criteria that require considering detailed user needs, environmental impact, materials and cost. - Coming up with a broader range of ideas and deeper innovation, requiring pupils to think critically about their ideas' practicality and originality. - Beginning to use more complex annotated sketches, such as cross-sectional and exploded diagrams and pattern pieces in design. - Using a series of prototypes to refine and improve their designs. <p>Make</p> <ul style="list-style-type: none"> - Consistently apply safety instructions. - Select appropriate scissors to handle delicate cutting tasks and challenging materials. - Cutting patterns and drawings accurately. - In supervised groups, using hot glue guns safely. - Recognising that hot glue is useful for joining materials that need a strong bond that sets quickly. - Choosing PVA glue over hot glue for its safety when joining materials in less intensive projects. <p>Evaluate</p> <ul style="list-style-type: none"> - Reflecting on the usability, aesthetics, innovation and sustainability of products and discussing how design choices impact these aspects. - Assessing their designs against a more complex set of design criteria that includes functionality, aesthetics, user experience, sustainability and cost. - Considering alternative materials, tools or techniques that could enhance the product. - Providing feedback that is helpful, specific, and encouraging. - Incorporating feedback from peers or users to improve their product further, explaining the changes they made and the impact they had.
<p>Spr 1/2 Unit title: Structures - Bridges</p>	<p><u>National Curriculum coverage</u></p> <ul style="list-style-type: none"> - Identify stronger and weaker supporting shapes. - Recognise that supporting shapes can help increase the strength of a bridge so it can hold more weight. - Identify beam, arch and truss bridges and describe their differences. - Use triangles to create simple truss bridges that support a load (weight). - Cut beams to the correct size using a cutting mat. - Smooth down rough cut edges with sandpaper. - Follow each stage of the truss bridge creation as instructed by the teacher. - Complete a bridge with varying ranges of accuracy and finish supported by the teacher. - Identify some areas for improvement and reinforcing bridges as necessary. 	<p><u>Key designing skills</u></p> <p>Design</p> <ul style="list-style-type: none"> - Designing a stable structure that is able to support weight. - Creating a frame structure with a focus on triangulation. <p>Make</p> <ul style="list-style-type: none"> - Making a range of different shaped beam bridges. - Using triangles to create truss bridges that span a given distance and support a load. - Building a wooden bridge structure. - Independently measuring and marking wood accurately. - Selecting appropriate tools and equipment for particular tasks. - Using the correct techniques to saw safely. - Identifying where a structure needs reinforcement and using card corners for support. - Explaining why selecting appropriate materials is an important part of the design process. - Understanding basic wood functional properties.

		<p>Evaluate</p> <ul style="list-style-type: none"> - Adapting and improving own bridge structure by identifying points of weakness and reinforcing them as necessary. - Suggesting points for improvements for own bridges and those designed by others.
<p>Sum 1/2 Unit title: Cooking and Nutrition – Developing a recipe</p>	<p>National Curriculum coverage</p> <ul style="list-style-type: none"> - Describe the process of beef production - Research a traditional recipe and make changes to it - Add nutritional value to a recipe by selecting ingredients - Prepare and cook a version of bolognese sauce 	<p>Key designing skills</p> <ul style="list-style-type: none"> - Explaining the farm-to-fork process - Researching existing recipes - Suggesting alternative ingredients - Analysing nutritional content - Writing an alternative recipe - Understanding cross-contamination - Using preparation skills - Designing a jar label - Making a developed recipe

